

Guidelines for Bioterrorism Sample Collection, Packaging, and Transport to the
Utah Department of Health Laboratory
46 North Medical Drive
Salt Lake City, UT 84113

Contact information at Utah Department of Health
Dr. June Pounder or Kim Christensen (801) 584-8449 office (801) 584-8411 lab
Email jpounder@utah.gov kchriste@utah.gov
After Hours DELS Pager (801) 241-1172

All samples should be determined to be associated with a Bioterrorism Credible Threat by FBI
Guidelines

Safety-Primary concern for you and us

Clinical Specimens: refer to Level A Laboratory Manual for Agents of Bioterrorism
www.health.utah.gov/els/microbiology

Environmental Samples

- Powder/paper
- Water
- Soil
- Animal carcass, tissues, blood
- Vectors: fleas, mosquitoes, ticks
- Plant material
- Food

Outer container must be free of contamination

- Place sample in sealed, clean, dry container (Ziploc bags OK)
- Remove gloves
- Put on clean gloves
- Place sample into a second clean container in clean area
- Seal outer container.
- Can decontaminate outer container if necessary- 10% household bleach 10 min.
- OR place within an additional clean outer container

Please do NOT treat sample to be tested with bleach or other decontamination solutions.
Please do NOT place samples in large containers, like 55 gallon drums or 5 gallon buckets.
Please do NOT use floor dry or particulate adsorbents as packing material.
Please do NOT seal outer package completely with tape.
Please test all samples for explosives, chemical and radiological hazards prior to submission to the UDOH Lab for biological analysis.
Please observe Chain of Custody protocol at all steps.
Please secure all containers when driving them to the UDOH Lab.
For liquid samples, have adequate absorbent material in case of a spill.
Thank you for your cooperation.

Guidelines For the Safe Transport of Infectious Substances

I. Introduction

Packaging and shipping regulations are provided to protect postal, airline and other transport industry personnel from exposure to microorganisms that escape from broken, leaking or improperly packaged material. These regulations have been put together by several agencies within the federal government and by private industry associations. The regulations vary somewhat, but all of them give the responsibility to the **shipper** to correctly **classify, package, label, and prepare documentation** for all shipments of diagnostic and infectious material. All national and international regulations require that anyone handling, packaging or shipping infectious substances must be a trained person.
(See **Appendix A** for regulation sources)

II. Classification (From the current United Nations (UN) Recommendations on the Transport of Dangerous Goods)

A Diagnostic Specimen:

Diagnostic specimens are not considered to be hazardous material because they pose a negligible threat to the public health. They should have a relatively low probability of containing pathogens, and are being shipped for the purpose of testing other than for presence of pathogens.

B Infectious Substance:

Infectious substances are classified as **hazardous material** that requires specific packaging. These samples are defined as infectious substances:

1. All **cultures** containing or suspected of containing an agent that may cause infection; (see infectious agent list, **Appendix B.**)
2. Human or animal samples likely to contain an infectious agent.

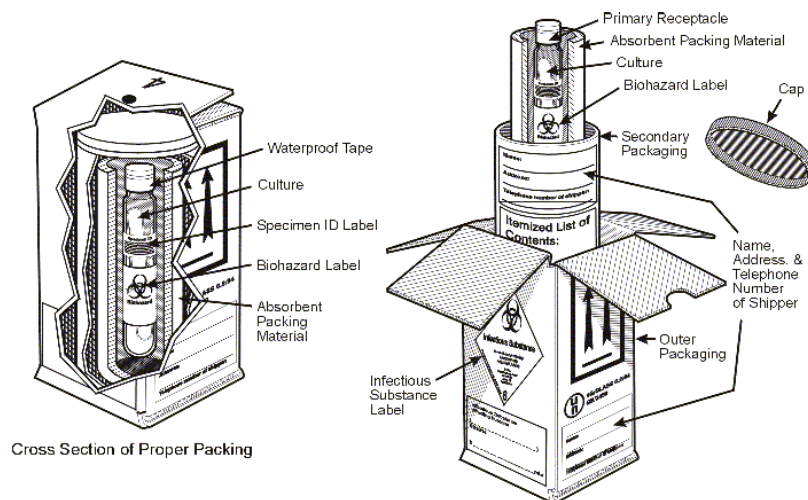
III. Shipment of Infectious Substances by Commercial Carrier

A Planning

1. Call the recipient to verify the shipping address and obtain the name and phone number of the contact person. Find out when the contact person will be able to receive the shipment.
2. Shipments should not go out on Thursday or Friday unless the recipient guarantees that they will be there to receive the package on the weekend.

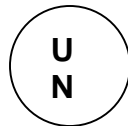
B Packaging

Proper packaging includes the classification, packing, labeling, and documentation of materials for shipment. Samples must be packaged to withstand leakage of contents, shocks, pressure changes and other conditions likely to occur during ordinary handling in transportation.



Packing and Labeling of Infectious Substances

1. The **primary sample container** has to be waterproof and leak proof.
 - a Seal culture plates and screw-capped tubes with tape or Parafilm.
 - b Wrap the specimen container with enough absorbent material to absorb the entire liquid contents in the event of leakage.
 - c Put the sample container in a zip-locked biohazard bag with a pre-printed name, address, and telephone number. Put solid culture containers in one zip-locked bag. Put liquid culture containers in **two** bags.
 - d Pre-freeze samples that will be shipped frozen.
2. The **secondary container** is part of a complete packaging system. It should be unbreakable, waterproof, leak proof and have a biohazard label on the outside. (See **Appendix C** for certified shipping systems, source information and packing instructions.)
3. A certified **outer shipping package** is strong enough to hold the capacity and mass indicated on the bottom of the box. Choose the appropriate package.
 - a It must meet the UN class 6.2 specifications and packaging instructions (PI) 602 and bear the UN Packaging Specification Marking. Containers and packaging systems must be 4G Class 6.2/98 or less than three years from the year of certification design.



4G CLASS 6.2 / 99
CAN / 8-2 SAF-T-PAK

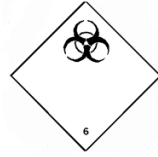
- b Each shipper comes with the required inner packaging and labels. Do not make any substitutions or the UN-certification becomes invalid. If the secondary container is reusable, you may use a refurbishment kit for each shipper. Ensure there are no holes or dents and remove previous labels from recycled shippers.
- c Follow the **closing instructions** included with each UN-certified packaging system.
- d If over-packs are used, the shipping package and the over-packs must be marked and labeled identically. An additional label is required on the over-pack:

“Inner packages comply with prescribed specifications”.

C Labeling: Apply labels to a flat surface without overlap or corner wrap.

1. **Hazard Labels for Dangerous Goods** must be displayed on packages with infectious substances and/or dry ice.

a **Hazardous Class 6.2 Infectious Substances**



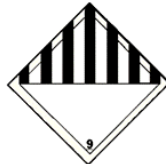
Printing on the label should state:

Etiologic agents
Biomedical material
In case of damage or leakage
Notify Director CDC, Atlanta, Georgia
(404) 633-5313

Apply the Class 6.2 label on the blank diamond marked on the outside of the outer package.

b **Miscellaneous Hazard Class 9 Dry Ice**

The Hazard Class 9 dry ice label is only required for shipments containing dry ice. The weight of the dry ice in kg is hand-written on the white portion of the label.



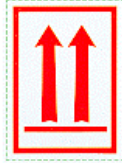
Apply the Miscellaneous Hazard label on the side of the box opposite the Hazardous Substance label.

The UN shipping name label for dry ice should be in the format:

Carbon dioxide, solid
(Dry ice)
UN1845
_____ kg.

Place this label next to the Miscellaneous Hazard label

2. The **Orientation Labels** are printed on opposite sides of the shipping container not covered by the hazard warning labels. Do not cover them.



3. A **UN shipping name label** is required for each **infectious organism** in a shipment. The UN shipping label must have the exact format:

Infectious substances,
Affecting humans
(*Escherichia coli*)
UN2814
X_____ mL.

It must be affixed to the outside package next to Hazard Class 6.2 label.

4. Apply an **Address Label** on one side of the box with the following information:

- a The receiver's name, shipping address (no P.O. Boxes) and telephone number, including the area code.
- b The shipper's name, address and telephone number
- c Temperature storage requirements of the package contents (optional)

D Documenting

1. Complete the **forms and letters** that will be enclosed with the sample.
 - a **Memo:** All shipments of infectious substances must include a **memo on letterhead** (There is an example in **Appendix D**) Insert one of these forms on top of the secondary container before closing the outer shipping package.
 - b **Test request:** If a sample is being forwarded from another lab, enclose a copy of the referral test request form.
2. **Shipping record file:** Make a copy of all forms to keep in a shipping record file folder. Keep shipping record folders for two years.
3. Complete **shipping documents** provided by the commercial carrier:
 - a Commercial air shipments require an **Air Waybill** (tracking document). Include the name and telephone number of the person responsible for the shipment. This person must be knowledgeable and accessible 7 days a week, 24 hours a day. Apply the Waybill, in a shipping pouch with an address window, to the top surface of the closed package.
 - b Infectious substances require a **Dangerous Goods Declaration**. Follow exact directions to avoid a fine.
 - (1) Insert the Dangerous Goods Declaration forms into a shipping pouch and apply the pouch to the bottom of the package.
 - (2) The attachment pouches may overlap the edge of the top and bottom of the package. Make sure that the edges do not overlap any of the labels or markings on the side

E Shipping

Some commercial carriers will not ship infectious substances. Call your local carrier to make sure they will accept an infectious substance. FedEx ships infectious substances for the Utah Department of Health Lab and provides a computer program that helps to prepare the shipping documents.

IV. Local Transport of Diagnostic Specimens, Infectious Substances & Environmental Samples

Local transport, usually performed by a courier service, may include the transfer of specimens from a doctor's office / hospital to a laboratory, or from one laboratory to another. Safe transport by this means is as important as for air shipment. The contents of a sample should not have any possibility of escaping from the package under normal conditions of transport.

A Packaging

1. The primary sample container has to be waterproof and leak-proof.
 - a Seal culture plates and screw-capped tubes with tape or Parafilm.
 - b Wrap the specimen container with absorbent material to absorb any leakage and secure with tape.
2. Put the specimen container in a zip-locked biohazard bag with the laboratory name, address, and telephone number. Put containers with liquid culture media in **two** bags.

B Labeling

1. Attach a label with the name, address, and telephone number of the recipient and storage requirements.
2. Put the specimen identification form or test request form in the outside pocket of the specimen biohazard bag. **Do not** put the form **inside** the specimen bag.

C Transporting

1. The sample containers should be placed in a leak-proof, unbreakable transport box with a secure, tight-fitting cover and a biohazard label. Frozen specimens should be put into a labeled, insulated box with dry ice. If dry ice is not available, ice packs are acceptable.
2. The transport box should be carried to the courier vehicle and secured in position for transport.
3. The courier vehicle should carry a spill kit with absorbent material, disposable gloves, a chlorine disinfectant, and a leak-proof waste disposal container.

Appendix A. Regulation References

For the Transportation of Infectious Substances

1. **Public Health Service 42 CFR Part 72. Interstate Transportation of Etiologic Agents.**
<http://www.cdc.gov/od/ohs/biosfty/shipregs.htm>
2. **Department of Transportation. 49 DFR Parts 171-180. Hazardous Materials Regulations.** Applies to the shipment of both biological agents and clinical specimens.
<http://hazmat.dot.gov/rules.htm>
3. **United States Postal Service. 39 CFR Part 111. Mail ability of Etiologic Agents.** From the Domestic Mail Manual 124.38.
<http://www.access.gpo.gov>
4. **Occupational Health and Safety Administration (OSHA). 29 CFR Part 1910. 1030.** Provides minimal packaging and labeling requirements for transport of blood and body fluids within the laboratory and outside of it.
<http://www.osha.gov>
5. **Dangerous Goods Regulations (DGR). International Air Transport Association (IATA).** These regulations followed by the airlines provide packaging and labeling requirements for infectious substances and materials, as well as for diagnostic specimens.
<http://www.iata.org/cargo/dg/>
6. **Guidelines for the Safe Transport of Infectious Substances and Diagnostic Specimens.** World Health Organization, 1997.
<http://www.who.int/emc/biosafety.html>

Appendix B. Infectious Agents Listed in 42 CFR Part 72

Interstate Shipment of Etiologic Agents

Bacterial Agents

Acinetobacter calcoaceticus
Actinobacillus – all species
Actinomycetaceae – all members
Aeromonas hydrophila
Arachnia propionica
Arizona hinshawii – all serotypes
Bacillus anthracis
Bacteroides spp.
Bartonella – all species
Bordetella – all species
Borrelia recurrentis, B. vincenti
Brucella – all species
Campylobacter (Vibrio) foetus,
C. (Vibrio) jejuni
Chlamydia psittaci, C. trachomatis
Clostridium botulinum,
Cl. chauvoei
Cl. haemolyticum, Cl. Histolyticum
Cl. novyi
Cl. septicum
Cl. tetani
Corynebacterium diphtheriae
C. equi
C. haemolyticum
C. pseudotuberculosis
C. pyrogenes
C. renale
Edwardsiella tarda
Erysipelothrix insidiosa
Escherichia coli – all enteropathogenic serotypes
Francisella [Pasteurella] Tularensis
Haemophilus ducreyi
H. influenzae
Klebsiella – all species and all serotypes

Legionella – all species and all Legionella-like organisms
Leptospira interrogans – all serovars
Listeria – all species
Mimae polymorpha
Moraxella – all species
Mycobacterium – all species
Mycoplasma – all species
Neisseria gonorrhoeae
N. meningitidis
Nocardia asteroides
Pasteurella – all species
Plesiomonas shigelloides
Proteus – all species
Pseudomonas mallei
Pseudomonas pseudomallei
Salmonella – all species and all serotypes
Shigella – all species and all serotypes
Sphaerophorus necrophorus
Staphylococcus aureus
Streptobacillus moniliformis
Streptococcus pneumoniae
Streptococcus pyogenes
Treponema carereum
T. pallidum
T. pertenue
Vibrio cholerae
V. parahaemolyticus
Yersinia (Pasteurella) pestis
Y. enterocolitica

Fungal Agents

Blastomyces dermatitidis
Coccidioides immitis
Cryptococcus neoformans
Histoplasma capsulatum
Paracoccidioides brasiliensis

Appendix B. (cont')

Viral and Rickettsial Agents

Adenoviruses – *human* – *all types*

Arboviruses – *all types*

Coxiella burnetii

Coxsackie A and B viruses – *all types*

Creutzfeldt – Jacob agent

Cytomegaloviruses

Dengue viruses – *all types*

Ebola viruses

Echoviruses – *all types*

Encephalomyocarditis virus

Hemorrhagic fever agents including, *but not limited to, Crimean*

hemorrhagic fever (Congo) Junin,

Machupo viruses, and Korean

hemorrhagic fever viruses

Hepatitis associated materials

(*hepatitis A, hepatitis B, hepatitis noA-nonB*)

Herpesvirus – *all members*

Infectious bronchitis – *like virus*

Influenza viruses – *all types*

Kuru agent

Lassa virus

Lymphocytic choriomeningitis virus

Measles virus

Mumps virus

Parainfluenza viruses – *all types*

Polioviruses – *all types*

Rabies virus – *all strains*

Reoviruses – *all types*

Respiratory syncytial virus

Rhinoviruses – *all types*

Rickettsia – *all species*

Rocha limaia Quintana

Rotaviruses – *all types*

Rubella virus

Simian virus 40

Tick-borne encephalitis virus

complex, including Russian spring-

summer encephalitis, Kyasanur

forest disease, Omsk hemorrhagic

fever, and Central European

encephalitis viruses

Vaccinia virus

Varicella virus

Variola major and Variola minor

viruses

Vesicular stomatitis viruses – *all types*

White poxviruses

Yellowfever virus

**Appendix C. UN-Certified Shipping Systems
For Hazard Class 6.2, Infectious Substances
With Closing Instructions**

SAF-T-PAK, Inc.
101, 17872 – 106 Avenue
Edmonton, Alberta, Canada T5S
1V4
Phone: 800-841-7484
FAX: 403-486-0235 Web:
<http://www.saftpak.com>

VWR Scientific Products
Sales Representative: Trinh Nguyen
Sales: (800) 932-5000
Sales Fax: (800) 477-4897
Voice Mail: (800) 873-8977 x 3050
Internet: <http://www.vwrsp.com>

Speci-FREEZ Insulated Shipper

VWR cat. No. 11217- 086 4/\$56.00

Use the insulated shipper with the Infecon 3000 complete packaging system for transporting specimens that must be kept frozen or refrigerated. It is designed to hold the smaller package securely without shifting as the dry ice dissipates.



When packed with approx. 22 lbs. Dry ice, this lightweight, insulated shipper keeps contents frozen for 76 hours. Transporter has 1 ½ " thick expanded polystyrene sides and lid, enclosed in a 200 lb.-test fiberboard carton for protection. It contains all the necessary hazard labels, handling labels and instructions.

Infecon 3000 Infectious Substance Shipper

VWR cat. No. 11217-660 12/\$219.34



Refurbishment Kit VWR cat. No. 11217-114 4/\$79.69 contains outer box, O-ring, coil, instructions, declaration and labels.

Appendix C. (Cont')

Use an Infecon 3000 Infectious Substance Shipper for **small** samples (Less than 500 ml and less than 3" X 4") shipped at **ambient** temperature. The complete, ready-to-use pack includes a pressure vessel, cushioning material, absorbent, labels, outer box, and instructions. The 1.25L polypropylene pressure vessel (secondary container) with O-ring is airtight and leak-proof, autoclavable and will withstand up to 95-kPa pressure. The sturdy outer box is imprinted with instructions and clearly displayed UN markings. The pack may be completely refurbished for economical re-use.

Closing instructions for the Infecon 3000

1. Use the entire system as directed. Do not alter the inner packing material. Failure to use the packaging system properly makes you liable for any damage or injury resulting from breakage or exposure to the infectious contents of the package.
2. Seal the primary container in a zip-locked biohazard bag with the lab's name, address and phone number.
3. Wrap the bagged container snugly in a piece of bubble wrap and secure it with pressure sensitive tape. Put an absorbent pad, sufficient to absorb any liquid, into the bottom of the wide-mouthed jar with the orange screw cap.
4. Place the wrapped primary container inside the jar and fill voids with bubble wrap.
5. If you are shipping more than one specimen in the same package, do not allow primary containers to come in contact with one another during shipment.
6. Make sure the O-ring seal is smooth and intact. Screw the cap on.
7. Tape an itemized list of contents on the outside of the jar.
8. Put the fiberboard coil into the outer shipping package.
9. Place the closed jar inside the fiberboard coil.
10. Leave the outer package open until the shipping documents are prepared.
11. Compare the information on the Air Waybill and Dangerous Goods Declaration to the information on the letterhead memo for accuracy.
12. Put the memo on top of the inner pack and close the box.
13. Tape the flaps, top and sides with 3" shipping tape.
14. Apply the Air Waybill, Dangerous Goods Declaration and hazard labels on the outside of the package according to the section on labeling and documentation.

Appendix D. Example of a Memo
To Accompany Infectious Substance Shipments

From: Name / Title
Facility Name
Address
Telephone: _____

To: Name / Title
Facility Name
Address
Telephone: _____

Date:

Re:

Explain what is being sent and why.

Storage conditions:

(Signature)

Instructions: Supply the required information and print on letterhead paper.